

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a melon protein with the activity of a constitutive triple response (CTR) protein, wherein the nucleic acid sequence is selected from the group consisting of:

- (a) a nucleic acid sequence encoding a protein comprising the amino acid sequence of SEQ ID NO: 2;
- (b) a nucleic acid sequence that is SEQ ID NO: 1;
- (c) a nucleic acid sequence that is nucleotides A-3286 of SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444;
- (d) a nucleic acid sequence that has at least 85% sequence identity to the coding region of (a), (b) or (c)
- (e) a nucleic acid sequence that will hybridize under moderate to high stringency conditions to the sequence presented as SEQ ID NO:1, or the complement thereof;
- (f) a fragment of the nucleic acid sequence of (a), (b) or (c) wherein the fragment encodes a protein which has the activity of a constitutive triple response (CTR) protein; and
- (g) a nucleic acid sequence that is degenerate as a result of the genetic code to the nucleic acid sequence of (a), (b), (c), (d), (e) or (f).

2. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence has at least 90% sequence identity to the sequence presented as SEQ ID NO:1.

3. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence is the sequence presented as SEQ ID NO:1.

4. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence has at least 85% sequence identity to nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

5. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence is nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

6. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence encodes a protein having at least 85% sequence identity to the sequence presented as SEQ ID NO:2.

5 7. The isolated nucleic acid molecule according to claim 1, wherein the nucleic acid sequence encodes a protein having the amino acid sequence presented as SEQ ID NO: 2.

8. A plant expression vector comprising a nucleic acid sequence of claim 1.

10 9. A plant expression vector comprising the nucleic acid sequence of claim 8, operably linked to control sequences recognized by a plant cell transformed with the vector.

15 10. A transgenic plant cell comprising the plant expression vector of claim 9.

11. A transgenic plant cell comprising a nucleic acid sequence of claim 1.

12. A mature transgenic plant comprising the plant cell of claim 10.

20 13. An isolated protein having the activity of a constitutive triple response (CTR) protein, said protein encoded by a nucleic acid sequence selected from the group consisting of:

(a) the nucleic acid sequence presented as SEQ ID NO: 1;

25 (b) the nucleic acid sequence presented as nucleotides A-3286 of SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444;

(c) a nucleic acid sequence that has at least 85% sequence identity to the coding region of (a) or (b);

30 (d) a fragment of the nucleic acid sequence of (a) or (b) wherein the fragment encodes a protein which has the activity of a constitutive triple response (CTR) protein; and

(e) a nucleic acid sequence that is degenerate as a result of the genetic code to the nucleic acid sequence of (a), (b), (c) or (d).

14. A plant ~~expression~~ vector according to claim 9, further comprising a selectable marker-~~encoding~~ nucleic acid sequence.

5 15. A method for producing a transgenic plant line having a decreased response to ethylene, comprising;

(a) introducing a plant expression vector according to claim 14 into cells of said plant under conditions effective to yield transformed plant cells;

(b) selecting for transformed plant cells in culturing medium containing a selection agent; and

10 (c) growing said selected plant cells to produce a transgenic plant line, wherein the seedlings of said line exhibit a modulated triple response to ethylene.

16. The method according to claim 15, wherein the nucleic acid sequence has at least 85% sequence identity to the sequence presented as SEQ ID NO:1.

15

17. The method according to claim 15, wherein the nucleic acid sequence is the sequence presented as SEQ ID NO:1.

20

18. The method according to claim 15, wherein the nucleic acid sequence has at least 85% sequence identity to nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

25

19. The method according to claim 15, wherein the nucleic acid sequence is nucleotides A-3286 of the sequence presented as SEQ ID NO:1, wherein A is any one of nucleotides 1440-1444.

20. The method according to claim 15, wherein the nucleic acid sequence encodes a protein having the amino acid sequence presented as SEQ ID NO: 2.

10/27/07
1.1